## Total Pages - 03 (Three)

## 2017

M. Com.

1<sup>st</sup> Semester Examination

**BUSINESS STATISTICS** 

**PAPER – COM – 102** 

Full Marks : 50

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

## UNIT - I

# 1. Answer any two questions of the following: 5 X 2

- (a) Give a Classical definition of probability. Distinguish between objective probability and subjective probability.
- (b) Two NSS Coordinators ranked 10 NSS Volunteer in respect of their devotion towards NSS. Appling Kendalls Method, calculate the value of rank correlation coefficient

Volunteer	1	2	3	4	5	6	7	8	9	10
Rank by Coordinator 1	6	5	1	2	3	4	7.5	7.5	10	9
Rank by Coordinator 2	4	7	3	2	1	5.5	5.5	9	8	10

- (c) Prove that correlation coefficient is independent from change of origin and scale.
- (d) If two variables are independent then correlation coefficient is equal to zero. Is the converse is true.

(Turn Over)

(2)

# 2. Answer any one questions of the following: 10 X 1

a) i) If two dice are thrown at a time, then find out the probability that the sum of the points on the upper face of the dice is (i) greater than 8; (ii) neither 7 nor 11.

ii) A manufacturing firm produces pipes in two plants I and II with daily production of 1, 500 units and 2,000 units respectively. The fraction of defective pipes produced by the two plants I and II are 0.006 and 0.008 respectively. If a pipe is selected at random from the day's production and found to be defective, what is the probability that the product was produced in plant II? (2+3)+5

b) i) From the following table showing the data on an intelligent test of 10 salesman, calculate the rank correlation coefficient between intelligence and efficiency of salesman.

Salesman	1	2	3	4	5	6	7	8	9	10
Test score	50	70	50	60	80	50	90	50	60	60
Sales (Rs.)	25	60	45	50	45	20	55	30	45	30

ii) What is difference between correlation and regression. 8+2

### UNIT – II

#### 3. Answer any two questions of the following: 5 X 2

a) Discuss in brief the different methods of estimating trend value from a time series data.

b) Show the Fishers Price Index lies between Laspeyre's and Paasche's Price index.

c) Using Newton's Interpolation Formula find the number of Factories earning profits of Rs. 38000/- from the following data

Profit (Rs. 000)	30-40	40- 50	50- 60	60-70
No. of Factories	34	43	56	39

d) What do you mean by time series? Mentioned the chief component of time series. 3+2

## 4. Answer any one question of the following: 10 X 1

a)

applying Fisher's Model

i) Construct Index number of price from the following data

Commodity  $P_0$ Qo P Q<sub>n</sub> 2 8 А 4 6 В 5 10 3 8 С 3 17 5 15 2 24 D 2 26 E 5 14 4 16

ii) During a certain period the CLI went up from 140 to 250 and the salary of a worker also increased from Rs. 275/- to Rs. 410/-. Does the worker really gain? If so, by how much the real terms. 7+3

b) i) The annual premium charged by an Insurance Company for a policy of Rs. 1000000. Calculate the premium payable at the age of 26

Age in Years	20	25	30	35	40
Premium (Rs, 000)	23	26	30	35	42

ii) Calculate the seasonal index from the following data using average method.

Year	Ι	II	III	IV
2010	72	68	80	70
2011	76	70	82	74
2012	74	66	84	80
2013	76	74	84	78

5+5

### (Internal Assessment :10 marks)

(3)